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NPIC/TDS-255/67
30 August 1967

MEMORANDUM FOR: Executive Director, NPIC

SUBJECT: [redacted] Chip Comparators, History and TDS Actions

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1. On 26 June 1963 the Agency entered into a Fixed Price R&D contract [redacted] for the design and fabrication of a prototype stereo viewing chip comparator [redacted] This contract was sponsored by TDS from R&D funds [redacted] On 26 July 1965 the comparator was delivered and then accepted shortly thereafter.

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2. On 22 June 1964 the Agency entered into a Fixed Price Incentive contract [redacted] for three [redacted] Chip Comparators, which was subsequently amended in 1965 to include two additional chip comparators (the model [redacted] is essentially an improved version of the [redacted] The funding (not R&D) and requirements for all five [redacted] chip comparators came from the operating divisions. All five comparators were subsequently delivered but only the first unit delivered in December of 1965 was ever completely installed in IAS and checked out. As a result of the failure of the interferometers on the [redacted] prototype and really poor results on the [redacted] production model when installed, none [redacted] have been formally accepted by NPIC [redacted]

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3. As a result of the unacceptable performance of the comparators, a letter was sent [redacted] on 6 July 1966, expressing our concern on the performance of the chip comparators up to that time. On 28 July 1966 [redacted] sent NPIC a letter outlining the corrective actions they intended taking, and during this time period the [redacted] prototype machine was returned [redacted] to be retrofitted with the improvements already contained [redacted] (The funded modifications on the prototype [redacted] did not include any interferometer improvements by the manufacturer.) The original prototype [redacted] was again delivered by the manufacturer and is now in IAS. (IAS today has the machine in-house.)

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4. In October of 1966 [redacted] staff was assigned the problem of monitoring the efforts to make the comparators operationally acceptable. On 26 October 1966 [redacted] reviewed the work they were doing on the interferometers and the following agreements were made.

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25X1 SUBJECT: [redacted] Chip Comparators, History and TDY Action

c. The minimum acceptable time period between routine maintenance was to be two weeks with a goal of one month.

25X1 b. [redacted] had the [redacted] comparator there for 25X1
modifications at that time [redacted] and been delivered to 25X1
NPIC it was used as a test-bed for the interferometers for the
25X1 [redacted]

On the 3rd and 4th of January 1967 the [redacted] comparator (the 'K' 25X1
stands for the latest modification to the prototype) was tested prior
to shipping and within the test period performed satisfactorily.
25X1 [redacted] therefore authorized to ship it and it was delivered
25X1 and installed [redacted] on the 27th of January. During
February 1967 this comparator was left largely at the disposal of IBM
to evaluate and work out operational problems. By the 1st of March it
was apparent that the original prototype [redacted] had deteriorated 25X1
beyond an acceptable level of performance and [redacted] called 25X1
to repair same. Since then an extensive evaluation program has been
conducted to determine the nature of the problem, [redacted] 25X1
spending 39 man days in our facility to analyze and correct the problem.
The primary source of failure [redacted] was traced to Radio 25X1
Frequency interference between the two interferometers unique to all
25X1 of the chip comparators [redacted] while other problem areas have
been found they are not as critical as the radio frequency problem.
Since the problem area has been isolated, two of the [redacted] comparators 25X1
25X1 have been returned [redacted] for retrofit and analysis, in the
meantime [redacted] giving us full cooperation in keeping the
[redacted] in operational shape at NPIC while they continue their factory
25X1 analysis. They are now completing the modifications on the two [redacted] 25X1
and will start extensive testing which they hope to complete by mid-
September. If successful, the remaining three [redacted] will then be 25X1
retrofitted to the same standards.

5. The following additional factors have also affected the development of the comparators.

a. The original specifications [redacted] called for a 25X1
3" x 3" measuring stage. It was subsequently agreed to increase
this to 4½" x 4½" but this was never specified contractually
even though funding was provided in a subsequent amendment. The
original project engineer left [redacted] and the new engineers 25X1
were not aware of this commitment. There is, however, little
question as to the comparator's performing reliability over the
3" x 3" format.

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25X1 SUBJECT: [redacted] Chip Comparators, History and IDS Actions

b. At the time the comparators were delivered, we had no test and evaluation capability in-house and left this function up to the operating division.

c. An NPIC Photo Chip position has never been established.

d. Considerable difficulties have been encountered by the operating divisions in getting the necessary computer support for Real-Time processing. Frequently when the machine was operational it was impossible to get computer support. Progress has recently been made in this area although concern still exists whether the latest type of photo imagery can be exploited effectively with this equipment.

25X1 e. The [redacted] chip comparator is possibly the most precise piece of film measuration equipment in existence, and as a result, is extremely sensitive to a variety of environmental conditions.

f. The basic problem with the chip comparators is in the interferometers which are a proprietary item [redacted] 25X1
25X1 [redacted] Bringing in another company to tackle the problem was considered, but due to the possible legal repercussions it was decided to delay any such action until all possibilities [redacted] had been exhausted. 25X1

g. On the 28th of August [redacted] 25X1 were consulted concerning the Chip Comparators and both verified that they have current operational requirements for the comparators. In addition, they also have long range requirements for a chip comparator of increased flexibility.

25X1 h. In order to achieve a better understanding of the problem, [redacted] has been requested to give a presentation concerning their position. They have agreed to make the presentation [redacted] 25X1
25X1 [redacted] on 6 September 1967.

25X1 i. It is recommended that no project redirection be taken until the results of [redacted] current effort is analyzed, they be
25X1 allowed to make their presentation on 6 September 1967, and additional data is obtained on the [redacted] comparator which has been operational in excess of 80% of the time within the last three weeks.

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SUBJECT: [redacted] Chip Computers, History and XDS Actions

5. The present location and status of the six computers are as follows: 25X1

[redacted]

Distribution:
1 - Addressee
1 - EPIC/A/PA
1 - EPIC/C/TID
1 - DDI/C/IAS
1 - DIAAP-5C2 25X1
2 - EPIC/A/TD [redacted]

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